UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

Tyco Healthcare Group LP d/b/a United States Surgical, a division of Tyco Healthcare Group LP,	:	
Plaintiff-Counterclaim Defendant,	:	
v.	:	**No. 3:04cv1702 (JBA)**
Ethicon Endo-Surgery, Inc.,	:	
Defendant-Counterclaimant.	:	

RULING ON MOTIONS FOR SUMMARY JUDGMENT
[DOCS. ## 119, 121, 124, 127]

Plaintiff Tyco Healthcare Group LP, doing business as United States Surgical ("U.S. Surgical") instituted this suit against Ethicon Endo-Surgery, Inc. ("Ethicon"), alleging patent infringement by Ethicon of four of U.S. Surgical's patents, all of which relate to a medical tool that uses ultrasonic energy to effect cutting and blood coagulation and is commonly used in laparoscopic or endoscopic surgeries.[1] Plaintiff claims that defendant has infringed its patents by incorporating the

[1] The patents in suit are U.S. Patent No. 6,063,050 (the "'050 Patent") (entitled "Ultrasonic Dissection and Coagulation System") (Complaint [Doc. # 1] Ex. A), U.S. Patent No. 6,280,407 (the "'407 Patent") (also entitled "Ultrasonic Dissection and Coagulation System") (Complaint Ex. B), U.S. Patent No. 6,468,286 (the "'286 Patent") (entitled "Ultrasonic Curved Blade") (Complaint Ex. C), and U.S. Patent No. 6,682,544 (the "'544 Patent") (also entitled "Ultrasonic Curved Blade") (Complaint Ex. D).

improvements to this medical tool claimed in its patents into Ethicon's own products, specifically Ethicon's "UltraCision Harmonic Scalpel Curved Blade" surgical instrument.

Now pending before the Court are two Motions for Summary Judgment from Ethicon concerning invalidity (Mot. for Summ. J. of Invalidity of Claims 1 and 7 of the 407 Patent Under 35 U.S.C. §§ 102(a) and 102(b) [Doc. # 119]; Mot. for Summ. J. of Invalidity Pursuant to 35 U.S.C. § 102(g) [Doc. # 124]), and the parties' cross-Motions for Summary Judgment on the issue of infringement of various claims (Ethicon Mot. for Partial Summ. J. of Noninfringement of Certain Claims [Doc. # 121]; U.S. Surgical Mot. for Summ. J. of Infringement [Doc. # 127]). The Court held oral argument on the pending motions on August 2, 2007. For the reasons that follow, Ethicon's Motion for Summary Judgment of Invalidity Pursuant to 35 U.S.C. § 102(g) will be denied, Ethicon's Motion for Summary Judgment of Invalidity of Claims 1 and 7 of the '407 Patent Under 35 U.S.C. §§ 102(a) and 102(b) will be granted, U.S. Surgical's Motion for Summary Judgment of Infringement will be granted, and Ethicon's Motion for Summary Judgment of Noninfringement will be granted in part and denied in part.

I. Introduction

As noted above, the four patents in suit all relate to substantial improvements made to a medical tool that uses

ultrasonic energy to effect cutting and blood coagulation during laparoscopic and endoscopic surgeries. With respect to Ethicon's motions concerning invalidity, plaintiff admits that the inventors named on the patents in suit reduced the claimed inventions to practice no earlier than March 1997 (and, for purposes of its motions, Ethicon accepts this date as accurate). While the specific evidence will be assessed infra, Ethicon contends that Ultracision, the company it acquired in November 1995, had several prototypes reduced to practice by March 1997, and that it continued development of the prototypes post-acquisition. Additionally, with respect to its §§ 102(a) and (b) Motion, Ethicon contends that its Dissecting Hook (which was in use/being sold before August 15, 1996) and the Davison Patent (issued June 21, 1994) anticipate two of the claims in the '286 Patent. The primary dispute with respect to this anticipation argument is whether these prior art references satisfy the '407 Patent claim term of "a transducer adapted to be removably supported on the handle portion of the housing, the transducer having a transducer horn adapted to be removably coupled to the proximal end of the vibration coupler," given that in the Dissecting Hook and the instrument claimed by the Davison Patent, the transducer is not the only component that is capable of being removed.

The parties also both move on infringement issues, with

plaintiff claiming entitlement to partial summary judgment of infringement on certain claims, and defendant claiming entitlement to partial summary judgment of non-infringement on some claims. The relevant claim language, constructions, and characteristics of the accused instruments will be discussed infra.

II. Standard

Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with affidavits . . . show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). A party seeking summary judgment "bears the burden of establishing that no genuine issue of material fact exists and that the undisputed facts establish [its] right to judgment as a matter of law." Gibbs-Alfano v. Burton, 281 F.3d 12, 18 (2d Cir. 2002). The duty of the court is to determine whether there are issues to be tried and, in making that determination, the Court must draw all factual inferences in favor of the party opposing the motion, viewing the factual disputes among materials such as affidavits, exhibits, and depositions in the light most favorable to that party. Phaneuf v. Fraikin, 448 F.3d 591, 595 (2d Cir. 2006). "If reasonable minds could differ as to the import of the evidence . . . and if there is any evidence in the record from

any source from which a reasonable inference in the nonmoving party's favor may be drawn, the moving party simply cannot obtain a summary judgment." R.B. Ventures, Ltd. v. Shane, 112 F.3d 54, 59 (2d Cir. 1997) (internal quotation, citation, and alteration omitted). However, "[w]here the record taken as a whole could not lead a rational trier of fact to find for the non-moving party, there is no genuine issue for trial." Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 586 (1986) (internal quotation and citation omitted).

In moving for summary judgment against a party who will bear the ultimate burden of proof at trial, the movant's burden of establishing that there is no genuine issue of material fact in dispute will be satisfied if he or she can point to an absence of evidence to support an essential element of the non-moving party's claim. Celotex Corp. v. Catrett, 477 U.S. 317, 322-23 (1986). "A defendant need not prove a negative when it moves for summary judgment on an issue that the plaintiff must prove at trial. It need only point to an absence of proof on plaintiff's part, and, at that point, plaintiff must 'designate specific facts showing that there is a genuine issue for trial.'" Parker v. Sony Pictures Entm't, Inc., 260 F.3d 100, 111 (2d Cir. 2001) (quoting Celotex, 477 U.S. at 324); see also Gallo v. Prudential Residential Servs. Ltd. P'ship, 22 F.3d 1219, 1223-24 (2d Cir. 1994) ("[T]he moving party may obtain summary judgment by showing

that little or no evidence may be found in support of the nonmoving party's case."). The non-moving party, in order to defeat summary judgment, must then come forward with evidence that would be sufficient to support a jury verdict in his or her favor. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 249 (1986) ("[T]here is no issue for trial unless there is sufficient evidence favoring the nonmoving party for a jury to return a verdict for that party."). In making this determination, the Court draws all reasonable inferences in the light most favorable to the party opposing the motion. Matsushita, 475 U.S. at 587. However, a party opposing summary judgment "may not rest upon the mere allegations or denials of the adverse party's pleading," Fed. R. Civ. P. 56(e), and "some metaphysical doubt as to the material facts" is insufficient. Id. at 586 (citations omitted).

III. Invalidity

A. Invalidity Under § 102(g)

Section 102(g) of the Patent Act provides:

> A person shall be entitled to a patent unless . . . (1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable

> diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

35 U.S.C. § 102(g). Pursuant to this section, Ethicon argues that the following claims are invalid: Claims 1, 5, 9, and 10 of the '050 Patent; Claims 1 and 7 of the '407 Patent; Claims 1, 6-14, 17, and 19 of the '286 Patent; and Claims 1, 2, 9-13, 16, 18, and 23-25 of the '544 Patent. Under § 102(g), "priority of invention goes to the first party to reduce an invention to practice unless the other party can show that it was the first to conceive the invention and that it exercised reasonable diligence in later reducing that invention to practice." Monsanto Co v. Mycogen Plant Science, Inc., 261 F.3d 1356, 1362 (Fed. Cir. 2001) (internal quotation omitted); see also Apotex USA, Inc. v. Merck & Co., Inc., 254 F.3d 1031, 1035 (Fed. Cir. 2001) ("In addition to governing priority determinations in interference proceedings . . . § 102(g) may be asserted as a basis for invalidating a patent in defense to an infringement suit."). According to the Federal Circuit:

> In order to establish an actual reduction to practice, [a party] must establish three things: (1) construction of an embodiment or performance of a process that me[eets] all of the limitations of the [relevant patent claim]; (2) determination that the invention would work for its intended purpose; . . . and (3) the existence of sufficient evidence to corroborate inventor testimony regarding these events.

Medichem, S.A. v. Rolabo, S.L., 437 F.3d 1157, 1169 (Fed. Cir. 2006) (internal quotations omitted); see also Slip Track Sys.,

Inc. v. Metal-Lite, Inc., 304 F.3d 1256, 1263 (Fed. Cir. 2002) (noting that "[c]onception must include every feature or limitation of the claimed invention").[2] The determination of "[p]riority of invention is a question of law based on underlying factual determinations" and "[b]ecause a patent is presumed valid, the quantum of proof required [is] clear and convincing evidence." Monsanto, 261 F.3d at 1362.

The primary § 102(g) dispute between the parties is whether the Ultracision and Ethicon prototypes worked for their "intended purpose" such that they can be said to have been "reduced to practice." In making "a section 102(g) priority determination between an issued patent and a scientist's work, the focus of the inquiry [is] upon the invention recited in the patent's claims." Mycogen Plant Science v. Monsanto Co., 243 F.3d 1316, 1332-33 (Fed. Cir. 2001). "It is important to distinguish between the goals of the project being pursued when the alleged reductions to

[2] Corroboration of inventor testimony "may be provided by sufficient independent circumstantial evidence, [but] corroboration of every factual issue contested by the parties is not a requirement of the law." In re Jolley, 308 F.3d 1317, 1328 (Fed. Cir. 2002). "Sufficiency of corroboration is determined by using a 'rule of reason' analysis, under which all pertinent evidence is examined when determining the credibility of an inventor's testimony . . . sufficient circumstantial evidence of an independent nature can satisfy the corroboration requirement." Medichem, 437 F.3d at 1170; accord Price v. Symsek, 988 F.2d 1187, 1195 (Fed. Cir. 1993) ("A 'rule of reason' analysis is applied to determine whether the inventor's prior conception testimony has been corroborated. . . . An evaluation of all pertinent evidence must be made so that a sound determination of the credibility of the inventor's story may be reached.").

practice were made and the objects of the invention of the count," for "[r]eduction to practice may occur [] without attaining the specific goals of the project." Hradel v. Griffith, 367 F.2d 851, 854 n.1 (C.C.P.A. 1966). Thus, while "[i]t is not necessary for testing to have proceeded to the point where the device is ready for commercialization in order to have an actual reduction to practice, . . . there must be a relationship between the test conditions and the intended functional setting . . . and the tests must prove that the invention will perform satisfactorily in the intended functional setting." Koval v. Bodenschatz, 463 F.2d 442, 447 (C.C.P.A. 1972); accord Scott v. Finney, 34 F.3d 1058, 1061 (Fed. Cir. 1994) ("Reduction to practice does not require that the invention, when tested, be in a commercially satisfactory stage of development.").[3] Accordingly, "[t]esting need not show utility beyond a possibility of failure," but it must show

[3] As both parties acknowledge, "[t]he nature and complexity of the problem necessarily influence the nature and sufficiency of the testing necessary to show a reduction to practice," and the Federal Circuit has "adopted a common sense assessment," which "prescribes more scrupulous testing under circumstances approaching actual use conditions when the problem includes many uncertainties. On the other hand, when the problem to be solved does not present myriad variables, common sense similarly permits little or no testing to show the soundness of the principles of operation of the invention." Scott, 34 F.3d at 1063. It is apparent, given the complexity of these ultrasonic surgical instruments and the circumstances in which they are intended to be used (i.e., surgery on humans), that substantial testing results are required to demonstrate a reduction to practice.

"utility beyond a probability of failure." Scott, 34 F.3d at 1061 ("Reduction to practice . . . does not require actual use, but only a reasonable showing that the invention will work to overcome the problem it addresses."). Additionally, "the inventor must contemporaneously appreciate that the embodiment worked and that it met all the limitations of the [claim]." Cooper v. Goldfarb, 154 F.3d 1321, 1327 (Fed. Cir. 1998).

Here, the parties disagree about the relevant "intended purpose," focusing their dispute on the issue of whether coagulation of tissue was included in that purpose, even though coagulation is not explicitly mentioned in the claims at issue. As the parties acknowledge, there is some division of authority on whether courts should consider, when determining "intended purpose," the patent specifications as well as the patent claims. While Ethicon cites some authority from the Federal Circuit's predecessor court suggesting that where a claim does not specify any particular use, "evidence proving substantial utility for any purpose is sufficient to establish reduction to practice," see Blickstein v. Seiden, 378 F.2d 988, 992 (C.C.P.A. 1967) (emphasis added); Archer v. Papa, 265 F.2d 954, 958 (C.C.P.A. 1959), those cases are outweighed, both temporally and in volume, by other authority suggesting that "[t]o determine an invention's intended purpose, the court need not focus solely on the patent's claims." Monsanto Co. v. Mycogen Plant Science, Inc., 61 F. Supp. 2d 133,

182 (D. Del. 1999) (finding that the patent's "Statement of Invention" best described the invention's intended purpose) (citing DSL Dynamic Sciences, Ltd. v. Union Switch & Signal, Inc., 928 F.2d 1122, 1124 (Fed. Cir. 1991)). In Manning v. Paradis, 296 F.3d 1098, 1103 (Fed. Cir. 2002), the Federal Circuit stated that "[j]ust as the preamble of a count may define a limitation of the count, so too it may define the intended purpose of the invention." The court then held that, where "the preamble define[s] the intended purpose of the invention because unless oxygen were delivered to the heart of the subject in a therapeutic amount the invention would have no purpose," even though the count itself did not specify the amount of oxygen to be provided by the claimed invention, "the intended purpose of the invention as stated in the count is to deliver an amount of oxygen to the heart of a subject in cardiac arrest, where the amount of oxygen is sufficient to have the therapeutic effect of preventing cellular damage to the subject's heart and brain." Id. at 1103-04.

Turning to the invention in this case, the claims at issue do not specifically claim an instrument that can coagulate (and cut) body tissue, but it appears undisputed that the functionality of such an instrument is severely impaired if it does not also facilitate coagulation. Thus, although not explicitly incorporated into each claim, the intended purpose of

this invention, as stated in the patent abstracts and thereby implicit in the claims themselves, is to comprise "[a]n ultrasonic dissection and coagulation system for surgical use." '050 Patent, Abstract; '407 Patent, Abstract; '286 Patent, Abstract; '544 Patent, Abstract. Indeed, as plaintiff remarks, there is little utility in an ultrasonic surgical instrument that can cut but cannot coagulate; the entire purpose of plaintiff's invention was to make improvements to an instrument capable of doing both. (Expert Report of William W. Cimino, Ph.D. [Doc. # 136, Ex. 14] ¶¶ 11, 13 ("More recently, ultrasonic technology has been used for cutting and coagulating tissue . . . the vibrations can simultaneously provide precise cutting and seal off blood vessels to prevent bleeding") (emphasis added); Gallagher Dep. [Doc. # 150, Ex. 1] at 220 (characterization of "[c]reation of an effective vessel seal" as "the most critical clinical function of LCS-5" was a "correct statement") (emphasis added); accord 1998 President's Quality Award Submission UltraCision Shears [Doc. # 150, Ex. 4] at EES0151216 ("Creation of an effective vessel seal was identified as the most critical function of the LCS-5.").) Thus, simply because an instrument could be used for some purpose — here, cutting of tissue — does not mean that the instrument works for its "intended purpose," which here clearly includes coagulating tissue. See Knapp v. Anderson, 477 F.2d 588, 590 (C.C.P.A. 1973) (rejecting defendant's argument "that sufficient

utility is demonstrated if the amines are useful for 'dispersing sludge' and the compositions are useful for 'maintaining sludge in suspension," where "[t]he record ma[de] it clear that such was not an objective of the [plaintiff's] research" and "the only utility contemplated for the amines [wa]s as ashless dispersants in lubricant compositions [and] [t]he compositions [we]re clearly intended to be used in internal combustion engines").

While recognizing that defendant's prototypes need not have been ready for commercialization nor have met the specific goals of Ultracision/Ethicon's development project, in order to have been reduced to practice for the "intended purpose" encompassed by the claims at issue here, the Court is not convinced that the testing reflected in the record shows "utility beyond a probability of failure" in meeting that purpose. Scott, 34 F.3d at 1061. Rather, the record reflects that the Ultracision/ Ethicon prototypes were not "capable of fulfilling the function for which they were designed." Knapp, 477 F.2d at 590.

Specifically, while there is corroborated evidence of some successful testing involving cutting and coagulating,[4] the record

[4] Amaral Dep. [Doc. # 136, Ex. 15] at 17-19, 111-12, 118-23; Diagram [Doc. # 136, Ex. 28 at EES0273188]; 9/19/96 Rep. [Doc. # 136, Ex. 43]; Video [Doc. # 136, Ex. 44]; Whipple Dep. [Doc. # 136, Ex. 30] at 47-52, 130-31; Cimino Decl. [Doc. # 136, Ex. 7] ¶ 4; Cimino Rep. ¶ 38; Wright Dep. [Doc. # 136, Ex. 31] at 139-43; Gallagher Dep. [Doc. # 136, Ex. 20] at 52-58, 64, 68-69, 73-74; 4/29/96 Rep. [Doc. # 136, Ex. 38]; 7/26/96 Rep. [Doc. # 136, ex. 39]; 8/23/96 Rep. [Doc. # 136, Ex. 42].

evidence also shows substantial problems, particularly with the coagulation capabilities of the prototypes.[5] Indeed, a 1998 prototype performance report indicated that "[t]he mean incident of hemorrhage with the early LCS-5 prototypes was 67%." (1998 President's Quality Award Submission UltraCision Shears at EES0151217.) Although defendant argues that the invention was reduced to practice in terms of coagulation at least with respect to smaller blood vessels, and observes that neither the patent claims nor the Court's construction thereof require coagulation at particular blood vessel sizes (or as necessary for use in particular surgeries), the evidence does not establish by clear and convincing undisputed evidence that the invention was reduced to practice for coagulation even of small blood vessels; the lab reports, testimony, and other evidence, including this 67% hemorrhage statistic, do not indicate success rates for smaller, versus larger, vessels, or vice versa. Defendant's evidence reflects that it was engaging in further testing and redesign and fully expected that the product would eventually work properly, but "what is required is not a mere basis for prediction but an actual demonstration." Elmore v. Schmitt, 278 F.2d 510, 513 (C.C.P.A. 1960) ("No doubt the laboratory tests and their results

[5] Gallagher Dep. [Doc. # 150, Ex. 1] at 216, 220; 4/29/96 Rep. [Doc. # 150, Ex. 16] at EES0151171; 9/19/96 Rep. at EES0038973; 7/2/97 Rep. [Doc. # 150, Ex. 5] at EES0002617; 3/2/98 Rep. [Doc. # 150, Ex. 2] at EES0025138.

were of an encouraging nature and may have justified a prediction that the invention would probably be successful if and when it was put to some specific practice use; but reduction to practice requires more than that."). Even beyond the coagulation problems, moreover, the record reflects other serious problems including tissue sticking, tissue charring, and smoke.[6]

Thus, the record evidence supports an inference that, during the relevant time, period Ethicon's prototypes had substantial problems — beyond being not ready for commercialization — such that defendant cannot establish "utility" for intended purpose beyond a probability of failure as a matter of law. Because a fact-finder could reasonably determine that there was no likelihood that these instruments would actually work, and therefore that the prototypes were not in fact reduced to practice in the 1995-1997 time frame, defendant's Motion for Summary Judgment of Invalidity Pursuant to 35 U.S.C. § 102(g) is denied.[7]

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[6] Gallagher Dep. at 32; "Ultracision Shears" [Doc. # 150, Ex. 4] at EES0151216-17; 9/19/96 Rep. at EES0038970-74; July 1997 Rep. [Doc. # 150, Ex. 6] at EES0002631; 7/2/97 Rep. at EES0002617, 0002621-22; 3/2/98 Rep. at 0025138.

[7] See also Koval, 463 F.2d at 447 (concluding that where "the counts define[d] a current-limiting 'circuit breaker,' and utility as a 'circuit breaker' [was thus required to be] demonstrated by the tests for those tests to constitute a reduction to practice," and the tests involved voltage ranges "hopelessly out of line with that which would be employed in any normal use of a circuit breaker of the defined construction," some tests resulted in a "tripping mechanism [which] failed to

B. Invalidity Under §§ 102(a) and 102(b)

Ethicon also contends that Claims 1 and 7 of the '407 patent are invalid under section 102(a) and (b), which condition patentability on whether

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.

35 U.S.C. § 102(a)-(b). A patent will only be found invalid if the prior art reference "expressly or inherently contains each and every limitation of the claimed subject matter." Schering Corp. v. Geneva Pharms., 339 F.3d 1373, 1379 (Fed. Cir. 2003); accord IPXL Holdings, L.L.C. v. Amazon.com, Inc., 430 F.3d 1377, 1381 (Fed. Cir. 2005) ("A claim is anticipated under 35 U.S.C. § 102 "if each and every limitation is found either expressly or inherently in a single prior art reference.").

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operate," other tests "had to be discontinued because of the practically inoperable mechanical condition of the breaker," and the final test "resulted in the breaker being 'completely burned,'" the tests were "inadequate to demonstrate [] utility [in the intended functional setting]"); Wiesner v. Weigert, 666 F.2d 582, 588 (C.C.P.A. 1981) (finding showing of reduction to practice insufficient where testimony indicated "significant unresolved problems [] perceived to exist in producing a working embodiment of the invention" which "remained present after the date of alleged reduction to practice," concluding "the embodiments tested . . . were not considered successful for their intended purpose and therefore had no recognized utility").

As courts have long recognized, "[t]hat which would literally infringe if later in time anticipates if earlier than the date of invention." Lewmar Marine, Inc. v. Barient, Inc., 827 F.2d 744, 747 (Fed. Cir. 1987). There are thus two questions for the Court to determine: (1) whether a particular reference is available as "prior art" on the basis of the relevant dates; and (2) whether the claimed prior art actually "anticipates (i.e., contains every claimed element [of])" the patent claims at issue. Hodosch v. Block Drug Co., Inc., 786 F.2d 1136, 1142 (Fed. Cir. 1986). As with the § 102(g) invalidity defense, because patents are presumed valid, the facts supporting a § 102(a) or § 102(b) defense must be proved by clear and convincing evidence. "[A] patent may be found to be anticipated on the basis of a reference that had properly been before the patent examined in the United States Patent and Trademark Office ("PTO") at the time of issuance," IPXL Holdings, 430 F.3d at 1381, although "when the prior art before the court is the same as that before the PTO, the burden on the party asserting invalidity is more difficult to meet," Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 447 (Fed. Cir. 1986).[8]

[8] "Although anticipation is a question of fact, it still may be decided on summary judgment if the record reveals no genuine dispute of material fact." Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1327 (Fed. Cir. 2001); accord SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1343 (Fed. Cir. 2005).

Here, Ethicon argues that Claims 1 and 7 of the '407 Patent are invalidated by the Ultracision/Ethicon Dissecting Hook and by the "Davison Patent" issued on June 21, 1994. Plaintiff does not appear to dispute that both the Dissecting Hook and the Davison Patent constitute "prior art," i.e., that both were in use/on sale/patented before the conception date of the invention claimed in Claims 1 and 7 of the '407 patent and/or the date of one year prior to the '407 Patent application (the relevant dates for § 102(a) and (b) purposes).[9] Plaintiff disputes, however, whether either of these instances of prior art actually anticipate Claims 1 and 7 of the '407 Patent, that is, whether they contain each and every limitation claimed therein. The crux of plaintiff's argument is that neither the Dissecting Hook nor the Davison Patent meets the Claim 1 limitation (and, by extension, that in dependent Claim 7) for "a transducer adapted to be removably supported on the handle portion of the housing, the transducer having a transducer horn adapted to be removably coupled to the proximal end of the vibration coupler." In other words, the only removable component in Claims 1 and 7 of the '407 Patent is the transducer, and the vibration coupler fits within

[9] Specifically, plaintiff does not dispute that the Ultracision Dissecting Hook was on sale and had been sold commercially before August 15, 1996 (Houser Decl. [Doc. # 136, Ex. 10] ¶¶ 3-4; Feb. 1995 Price List [Doc. # 136, Ex. 19]; Gallagher Dep. at 21-23; Cimino Dep. [Doc. # 136, Ex. 22] at 45-46), and that the Davison Patent (U.S. Patent No. 5,322,055) issued on June 21, 1994 (Davison Patent [Doc. # 136, Ex. 27]).

and is not removable from the housing, whereas in both the Dissecting Hook and the Davison Patent, the transducer and other components (including the vibration coupler) are removed from the housing together. Defendant contends that accepting this analysis would be tantamount to rewriting the '407 Patent claims to add a limitation requiring that only the transducer may be designed to be removable and that the vibration coupler must be configured so that it can never be removed from the housing, even when disassembled.

Turning first to the elements of the '407 Patent claims at issue, and then addressing the Dissecting Hook and the Davison Patent in turn, Claims 1 and 7 of the '407 Patent claim:

(a) An ultrasonic surgical instrument (Claim 1, Preamble);

(b) A housing including an elongated body portion and a handle portion (Claim 1);

(c) A vibration coupler having a proximal and a distal end, the vibration coupler being positioned within the housing and extending between the elongated body portion and the handle portion (Claim 1);

(d) A tool member supported on the distal end of the vibration coupler (Claim 1);

(e) A transducer adapted to be removably supported on the handle portion of the housing, the transducer having a transducer horn adapted to be removably coupled to the

proximal end of the vibration coupler (Claim 1); and

(f) An ultrasonic surgical instrument according to Claim 1, wherein the tool member includes a blade member (Claim 7).

1. Ultracision Dissecting Hook

As discussed supra, the primary dispute centers on whether the Dissecting Hook satisfies claim limitation (e) above. As to the other limitations, there is no or little dispute. Specifically, with respect to (a), the Dissecting Hook clearly constitutes an "ultrasonic surgical instrument." (Cimino Suppl. Decl. [Doc. #136, Ex. 23] ¶ 11 (citing Dissecting Hook marketing materials); Dissecting Hook Operator's Manual [Doc. # 136, Ex. 25] at EES0038252 (blade uses "ultrasonic activation" and "vibration); The Harmonic Scalpel [Doc. # 136, Ex. 26] at GW000023 ("The Harmonic Scalpel uses ultrasonic technology to create a balance between cutting and coagulation.").) While plaintiff disputes this fact, it cites only to the claim terms themselves, which do not provide any basis for concluding that the Dissecting Hook does not constitute an ultrasonic surgical instrument as claimed in the Preamble to Claim 1.

With respect to (b), plaintiff agrees that the Dissecting Hook contains a housing including an elongated body portion and a handle portion. (Pl. D. Conn. L. Civ. R. 56(a)2 Stmt. [Doc. # 152-2] ¶ 20; Cimino Suppl. Decl. ¶ 11 & Fig. 1 (citing marketing

literature); Dissecting Hook Operator's Manual at EES0038255; The Harmonic Scalpel (photograph of surgeon grasping handle portion).)

With respect to (c), the Court construed the term "extending between" to mean "stretching from one object to another object." (Claim Constr. [Doc. # 62] at 12-13.) Viewing the record evidence showing the Dissecting Hook assembled for use, it is apparent that the vibration coupler is positioned inside and extends through the elongated body portion of the instrument, with the proximal end of the vibration coupler connected to an ultrasonic transducer at the proximal end of the instrument. (Cimino Supp. Decl. ¶ 11 & Fig. 3; Dissecting Hook Operator's Manual at EES0038255, 0038268.) Additionally, as defendant contends, to the extent the instruments accused of infringement here can be considered to have "a vibration coupler having a proximal and distal end, the vibration coupler being positioned within the housing and extending between the elongated body portion and the handle portion," then the Dissecting Hook must also have a vibration coupler that meets this limitation. See Lewmar Marine, 827 F.2d at 747. In disputing whether the Dissecting Hook meets this limitation of Claims 1 and 7, plaintiff cites only to its expert's Rebuttal Report, his declaration, and his deposition. However, several of the paragraphs cited (¶¶ 27-36) of Dr. Durfee's Supplemental Expert

Report [Doc. # 153, Ex. 7] concern claims of the '050 Patent rather than the '407 Patent, paragraphs 37-44 concern anticipation of the '407 Patent claims by the Ultracision and Ethicon prototypes, and paragraphs 45-47 concern anticipation by the Davison Patent (see infra). Dr. Durfee's Declaration [Doc. # 153, Ex. 8] merely affirms the opinions set forth in his reports as "true and correct." Lastly, the excerpt of his deposition transcript referenced by plaintiff ([Doc. # 153, Ex. 6] at 262-63) concerns the removability of the transducer as implicated by limitation (e), not limitation (c). This evidence thus does not create a genuine dispute as to whether the Dissecting Hook meets limitation (c), that is, has a vibration coupler having a proximal and a distal end, the vibration coupler being positioned within the housing and extending between the elongated body portion and the handle portion.

With respect to (d), the plaintiff agrees that the Dissecting Hook has a tool member supported on the distal end of the vibration coupler. (Pl. D. Conn. L. Civ. R. 56(a)2 Stmt. ¶ 26; Cimino Supp. Decl. ¶ 11 & Fig. 2; Dissecting Hook Operator's Manual at EES0038258.) Plaintiff also agrees that the Dissecting Hook meets the additional limitation (f) from dependent Claim 7, that is, of an ultrasonic surgical instrument wherein the tool member includes a blade member. (Pl. D. Conn. L. Civ. R. 56(a)(2) Stmt. ¶ 28; Cimino Supp. Decl. ¶ 11 & Fig. 2; Dissecting

Hook Operator's Manual at EES0038258.)

Finally, with respect to the hotly contested limitation in (e), which claims "[a] transducer adapted to be removably supported on the handle portion of the housing, the transducer having a transducer horn adapted to be removably coupled to the proximal end of the vibration coupler," plaintiff contends that the Dissecting Hook does not meet this limitation because the invention presented in the '407 Patent contemplated an instrument in which the only removably fastened component would be the transducer, whereas in the Dissecting Hook, the transducer along with other elements, including the vibration coupler, all attached together, are capable of being removed, and then re-attached, to the housing of the instrument. In support of its contention, plaintiff refers to Dr. Durfee's testimony that

> on the Ultracision 10 millimeter devices [] when you take the transducer away, you can't just take the transducer away, you basically have, have a whole chunk of the instrument with it. And, in fact, it's a complete working instrument that you can use all by itself, even without the, without the handle portion. So it's a completely different sense than what we have in the '407 patent, where you can take the transducer away and the rest of the instrument is there. Here you're taking half of the instrument with you. So it's more than just a series of steps. It's, what happens when you take that transducer away from the handle assembly, it's not just the transducer, it's a whole bunch of things.

(Durfee Dep. at 262-63.)

However, Claim 1 of the '407 Patent, as construed pursuant to the agreement of the parties, does not contain a limitation

that the transducer and the transducer only must be adapted to be removably supported on the handle portion of the housing, whereas the vibration coupler and other elements must not be able to be detached, e.g., during disassembly. The parties agreed to the construction of the relevant portion of Claim 1 as

> a transducer configured, as part of its normal use, to be held up or in position by and to be removed from the handle portion of the housing so that when connected the transducer may transmit its ultrasonic vibrations to the parts of the instrument designs for the reception and transmission of the ultrasonic vibrations.

(Claim Constr. at 3.) Plaintiff argues that, because the word "removably" is used to describe the transducer but not any other element (e.g., the vibration coupler), by implication those other elements must not be removable. But this argument would, as defendant contends, constitute a rewriting of the claim; there is nothing in the Claim to suggest that it could not also cover a mechanism such as that of the Dissecting Hook, where the transducer is attached to the vibration coupler and other components and all are capable of being removed, in a piece, from the housing.[10] (See Cimino Supp. Decl. ¶ 11 & Figs. 4-6 (citing Dissecting Hook Operator's Manual at EES0038268, EES0038270 as

[10] As Dr. Cimino and the figures attached to his Supplemental Declaration show, the transducer and the vibration coupler are also removably attached from each other, such that they can be removed from the housing separately or, presumably, the transducer only could be removed from the housing, leaving the vibration coupler attached thereto.

"explain[ing] that the vibration coupler is removably coupled to the transducer by manually attaching it to the handpiece and turning it clockwise, and when disassembling, turning it counterclockwise to remove [and] that the transducer/handpiece is removably supported by the 'handle portion' of the housing").) Thus, absent a rewriting of this portion of Claim 1 consistent with plaintiff's urged interpretation,[11] the Dissecting Hook embodies every limitation of Claims 1 and 7 of the '407 Patent. Because the Dissecting Hook was in use/on sale prior to the claimed invention described in those claims and more than a year prior to the application for the '407 Patent, those claims are invalidated pursuant to § 102(a) and (b).

2. Davison Patent

Although the Court need not reach the issue of invalidity of Claims 1 and 7 of the '407 Patent by the Davison Patent given its conclusion with respect to the Dissecting Hook, because the issues are similar to those discussed with respect to the Dissecting Hook, and for sake of completeness, the Court will do so. As noted above, "a patent may be found to be anticipated on the basis of a reference that had properly been before the patent examined in the United States Patent and Trademark Office ("PTO")

[11] The Federal Circuit "repeatedly and consistently has recognized that courts may not redraft claims, whether to make them operable or to sustain their validity." Chef America v. Lamb-Weston, Inc., 358 F.3d 1371, 1374 (Fed. Cir. 2004).

at the time of issuance," IPXL Holdings, 430 F.3d at 1381, although "when the prior art before the court is the same as that before the PTO, the burden on the party asserting invalidity is more difficult to meet," Bausch & Lomb, 796 F.2d at 447.

Plaintiff agrees that the Davison Patent encompasses limitations (a) (ultrasonic surgical instrument) (Pl. D. Conn. L. Civ. R. 56(a)2 Stmt. ¶ 35), (b) (housing including an elongated body portion and a handle portion) (id. ¶ 36), (d) (tool member supported on the distal end of the vibration coupler) (id. ¶ 38), and (f) (ultrasonic surgical instrument wherein the tool member includes a blade member) (id. ¶ 39).

Plaintiff disputes whether the Davison Patent covers limitation (c), citing to Dr. Durfee's Rebuttal Report, his declaration, and an excerpt from his deposition transcript. Examination of the Davison Patent directly, however, shows that the instrument claimed contains a vibration coupler having a proximal and a distal end, the vibration coupler being positioned within the housing and extending between the elongated body portion and the handle portion, as that limitation has been construed by the parties. Davison Patent, 7:40-49 & Figs. 1a-c.[12] The evidence referenced by plaintiff does not create a

[12] See also Cimino Rep. ¶ 72 ("The ultrasonic surgical instrument of the Davison 055 Patent has a vibration coupler having proximal and distal ends, denoted as blade coupler extension 16 in Figure 1a (7:40-49). Figure 1a-c shows that the vibration coupler (blade coupler extension) has proximal and

legitimate dispute as to this conclusion: Dr. Durfee's Rebuttal Report, at the paragraphs cited, either does not concern the '407 Patent or concerns the '407 Patent vis-a-vis the Ultracision and Ethicon prototypes, discussed above in relation to § 102(g) invalidity, and discusses the Davison Patent only with respect to the removable transducer issue, which will be discussed shortly; the deposition transcript excerpt also discussed this issue, and not limitation (c).

Lastly, on the same basis as that discussed with respect to the Dissecting Hook, plaintiff disputes whether the Davison Patent meets limitation (e) because the Davison Patent, like the Dissecting Hook, comprises an instrument wherein "the entire 'ultrasonic instrument 10' — a working device in and of itself — [] is removable from the housing." U.S. Surgical Opp. [Doc. # 156] at 6. Following the same rationale as utilized above, however, the '407 Patent does not contain a limitation requiring that the transducer be removably fastened to the housing, but that it not be removable with any other component and that no other component (e.g., the vibration coupler) also be removable. That "the same claim element reciting that the transducer is 'removably supported' from the housing, [] further recites that [the] horn portion of the transducer is 'removably coupled' to

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distal ends, and when positioned within the housing, extends from the handle portion through the elongated body portion.").

the vibration coupler," id., is not sufficient for implying this limitation into the claim. The Federal Circuit has cautioned against "import[ing] a limitation into a claim where the limitation has no basis in the intrinsic record." Seachange Int'l, Inc. v. C-COR Inc., 413 F.3d 1361, 1376 (Fed. Cir. 2005).[13] Thus, the contention that "[h]ad the inventors intended to cover a device in which all of the instrument components (e.g., the transducer, the vibration coupler, the blade and other components) are simultaneously removable from the housing, they would have said so," is not persuasive. Id. The inventors may not have explicitly contemplated such an instrument, but they did not by the Patent's terms preclude such a design as falling within the terms of Claims 1 and 7. Because the instrument described in the Davison Patent undisputably includes "[a] transducer adapted to be removably supported on the handle portion of the housing, the transducer having a transducer horn adapted to be removably coupled to the proximal end of the vibration coupler," Davison Patent, 3:36-37; 7:31-40 & Fig. 1;

[13] Indeed, when the parties submitted their proposed claims constructions to the Court, neither party proposed that this limitation in Claim 1 be construed as requiring that the transducer be removably fastened to the handle portion of the housing, but that the remainder of the components (including the vibration coupler) be permanently fastened to, and incapable of being removed from, the housing.

7:40-49; 8:20-28 & Figs. 1a-c, 2,[14] it meets limitation (e), notwithstanding that the vibration coupler and other components are also capable of being removed from the housing along with the transducer. Accordingly, as the Davison Patent issued in June 1994, substantially before the conception date or year-before-application date of the '407 Patent, the Davison Patent also renders invalid Claims 1 and 7 of the '407 Patent pursuant to § 102(a) and (b).

Thus, defendant's Motion for Summary Judgment of Invalidity of Claims 1 and 7 of the 407 Patent Under 35 U.S.C. §§ 102(a) and 102(b) is granted.

IV. U.S. Surgical's Motion for Infringement

U.S. Surgical's Motion for Summary Judgment of Infringement relates to the following patent claims: '050 Patent Claims 1, 5, and 9; and '286 Patent Claims 1, 6, 7, and 15. The accused devices fall into two categories: the Ultracision Harmonic Scalpel Coagulating Shears curved blade products (the "Harmonic

[14] See also Cimino Rep. ¶ 72 ("The Davison 055 Patent explains that the described instrument has a handpiece 14 (Figure 1) that houses an ultrasonic transducer (7:31-40). Figure 1 shows handpiece 14 (3:36-37). The Davison 055 Patent further describes that the handle portion is mounted onto and demounted from handpiece 14 (8:20-28). Figures 1a, 1b, and 1c show the three stages of assembly between the handpiece/transducer and the housing/handle. Figure 2 shows the handpiece/transducer supported on the handle/housing and attached to the proximal end of the vibration coupler. Figure 2 shows a lever 42 that operates as a toggle for mounting and demounting (removably supported on) the handpiece/transducer from the accessory (8:25-28).").

Scalpel products"), which according to plaintiff "work with a generator that creates high frequency electrical signals, a transducer that converts electrical to mechanical, and a curved shears instrument for clamping, cutting and coagulating tissue" (Pl. Mem. [Doc. # 140] at 4); and the Harmonic ACE Cruved Shears (the "ACE products"), which plaintiff explains "also work with a generator and transducer and are a later generation of the Harmonic line of ultrasonic cutting and coagulation surgical devices. They also utilize a curved shears instrument for clamping, cutting and coagulating tissue" (id. at 4-5). Of the Harmonic Scalpel products, the specific products at issue are product numbers LCSC5, LCSC1, LSCS5L, LSCS5HA, and LSCH1HA (the "LCS products") and product numbers CS14C, CS141, CS23C, SC231 (the "CS products"); of the ACE products, the specific product numbers at issue are ACE23P, ACE36P, ACE14S, ACE23S, and ACE36S. According to plaintiff, the main difference between the various accused products relates to the manner in which the claimed "handles" of the devices are gripped by the user — some have "pistol grips," whereas others have "scissors grips." The significance of this distinction, particularly with respect to the ACE products containing pistol grips, will be discussed infra.

"Infringement entails a two-step process: First, the court determines the scope and meaning of the patent claims asserted

. . . and second, the properly construed claims are compared to the allegedly infringing device." Planet Bingo, LLC v. GameTech Intern., Inc., 472 F.3d 1338, 1341 (Fed. Cir. 2006) (internal quotation and alteration omitted). "Step one, claim construction, is a question of law. . . . Step two, comparison of the claims to the accused device, is a question of fact, and requires a determination that every claim limitation or its equivalent be found in the accused device." Id. (internal quotation omitted).

Infringement under the doctrine of equivalents, which plaintiff invokes at various points to support its position, "requires that the accused product contain each limitation of the claim or its equivalent. . . . An element in the accused product is equivalent to a claim limitation if the differences between the two are 'insubstantial' to one of ordinary skill in the art." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1359 (Fed. Cir. 2000) (internal citations omitted); accord Toro Co. v. White Consol. Indus., Inc., 266 F.3d 1367, 1370 (Fed. Cir. 2001) ("To infringe a claim under the doctrine of equivalents, an accused device must include an equivalent for each literally absent claim limitation. . . . To determine whether the accused device includes equivalents for a claim limitation, this court applies the 'insubstantial differences' test."). Although this "test offers little additional guidance as to what might render any

given difference 'insubstantial,'" Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40 (1997), the Supreme Court has also explained that:

> [C]ourts have . . . recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for – indeed encourage – the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law.

Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 607 (1950). In addition,

> [i]n some cases, the change in the accused device is so facially 'unimportant and insubstantial' that little additional guidance is needed for a fact finder to determine whether an accused device includes an equivalent of a claim limitation. For example, if an accused infringer has simply separated into two components what the patentee has claimed as one component, a fact finder might indeed find such a change 'insubstantial.' . . .
>
> In appropriate cases the function-way-result test offers additional guidance on the question of equivalence. . . . Under this test, the fact finder determines whether the element in the accused device does substantially the same thing in substantially the same way to get substantially the same result as the claim limitation.

Toro Co., 266 F.3d at 1370 (internal quotations and citations omitted).

A. Ethicon's Anticipation Argument

Ethicon's primary argument in opposition to plaintiff's Motion is that it can only be granted if Ethicon's own Motion

with respect to invalidity pursuant to § 102(g) is also granted, on grounds that the Ultracision and Ethicon prototypes have the same characteristics as the accused products, and thus if the latter are found to infringe U.S. Surgical's patent claims, the former must be found to anticipate them. See, e.g., Lewmar Marine, 827 F.2d at 747 ("That which would literally infringe if later in time anticipates if earlier than the date of invention."). However, as defendant recognizes, "patent infringement and invalidity are separate and distinct issues[, and] [t]hough an invalid claim cannot give rise to liability for infringement, whether it is infringed is an entirely separate question capable of determination without regarding to its validity." Pandrol USA, LP v. Airboss Railway Prods., Inc., 320 F.3d 1354, 1365 (Fed. Cir. 2003). While, as the Federal Circuit in Lewmar Marine acknowledged, infringement and invalidity analyses overlap in the sense of determining whether one embodiment meets every limitation of a patent claim at issue, the invalidity assessment also includes other considerations, such as whether the claimed prior art was reduced to practice, whether it would work for its intended purpose, and whether the prior art had been abandoned, concealed or suppressed.

In light of the Court's disposition of Ethicon's § 102(g) Motion on the grounds that the Ethicon and Ultracision prototypes have not been demonstrated by clear and convincing undisputed

evidence to have been successfully reduced to practice within the relevant time period, Ethicon's contentions that plaintiff's Motion for Summary Judgment can only be successful if the claims at issue are also found to be invalid are inapposite.[15]

B. '050 Patent Claim 1

Claim 1 of the '050 patent claims an ultrasonic surgical instrument with multiple limitations. Apart from its general denial, based on its anticipation/infringement argument discussed above (stating "To the extent U.S. Surgical disputes or denies (or the Court fails to find) that the Ethicon prototype or the Ultracision prototype include this element, then Ethicon disputes that the [accused] products also include it"), the only limitation Ethicon disputes with respect to Claim 1 is whether the ACE pistol grip instruments (ACE23P and ACE36P) have a housing that includes a first handle and a second handle moveable with respect to the first handle. As Ethicon does not substantively dispute satisfaction of any of Claim 1's other limitations, and U.S. Surgical proffers evidence supporting the conclusion that the accused instruments embody those

[15] As noted above, "patent infringement and invalidity are separate and distinct issues," and accused products are not analyzed under a "reduced to practice" for an "intended purpose" rubric. Moreover, the accused products have now been commercialized and are being sold in the market and are therefore being used in surgeries on human beings, thus reflecting a degree of success with coagulation (and in other respects) that was not demonstrated by defendant with respect to its prototypes in its Motion concerning § 102(g) invalidity.

limitations,[16] the Court determines there to be no genuine issue of material fact for trial as to those limitations.

With respect to the handle issue for the pistol grip ACE products, Claim 1 specifies "a housing including a first handle and a second handle movable with respect to the first handle." In construing the term "handle," the Court rejected defendant's proposed limitation that the construction require that the "handle" contain an opening into which fingers can be inserted,

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[16] Durfee Decl. [Doc. # 131] ¶¶ 30-31 (ultrasonic surgical instruments); ¶¶ 32-34 (housing including a first handle and a second handle movable with respect to the first handle); ¶¶ 35-37 (elongated outer tube extending from the housing, the elongated outer tube defining a longitudinal axis and having proximal and distal portions and a lumen extending therethrough); ¶¶ 38-40 (clamp member extending distally of the distal portion of the outer tube and pivotable between an open position and a clamped position by movement of the second handle between first and second positions, the clamp member including a tissue clamping surface); ¶¶ 41-43 (elongated actuator tube defining a central longitudinal axis, having a lumen extending therethrough and being positioned within the lumen of the outer tube, the actuator tube being longitudinally slidable within the lumen of the outer tube to pivot the clamp member between the open and clamped positions); ¶¶ 45-56 (elongated vibration coupler defining a longitudinal axis and positioned within the lumen of the actuator tube, the vibration coupler adapted to be operably connected to an ultrasonic generator for vibration in response to actuation of the ultrasonic generator and including a blade member extending therefrom, the blade member including a tissue contacting surface, the clamp member pivoting with respect to the tissue contacting surface to clamp tissue between the clamping surface of the clamp member and the tissue contacting surface of the blade member); ¶¶ 57-59 (rotation knob positioned adjacent the housing, the vibration coupler, outer tube and actuator tube being operatively connected to the rotation knob, the rotation knob rotatable to rotate the outer tube, actuator tube and vibration coupler about their respective longitudinal axes to change their orientation with respect to body tissue).

and adopted plaintiff's proposed construction of "[t]he part of the instrument designed to be grasped by the hand." (Claim Constr. at 6-7.)

Plaintiff contends that although defendant's expert claims there is no second handle in the ACE products because the trigger is grasped by fingers, not by the hand, defendant's expert also acknowledged at his deposition that fingers are part of the hand and when asked to grip a scissors grip product (which he admits includes handles), he acknowledged that its handles were also grasped by fingers. (Cimino Dep. [Doc. # 130, Ex. N] at 177-79.) Plaintiff also contends the claimed "second handle" in the pistol grip ACE products

> performs the same function, in the same way, to reach the same result as the claimed second moveable handle does (i.e., it performs the function of allowing the instrument to be grasped so the clamp can be actuated by the user, it performs this function in the same way by allowing the user to grasp the structure and squeeze or pull the structure so the clamp can be actuated, and reaches the same result of facilitating effective actuation of the clamp by the user).

(Durfee Decl. ¶ 34.) Defendant refers to a photograph of an ACE pistol grip product (Ethicon Mem. [Doc. # 141] at 37; Durfee Fig. D-3) and argues that the claimed second handle is actually a "trigger," not a handle. (Cimino Decl. ¶ 24 ("A person of ordinary skill would not consider the trigger of the ACE23P and ACE36P instruments to literally be a 'handle,' just as the trigger of a pistol would not be considered a handle. The user's

hand does not grasp the trigger; rather, the user uses one or two fingers to pull and release the trigger.").) Ethicon also addresses plaintiff's doctrine of equivalents argument, claiming insufficiency as plaintiff's expert (Durfee) does not explain how the function is performed or how the mechanism in the ACE products could be deemed the same, and argues that in fact the ACE mechanism is substantially different than that described in Claim 1 of the '050 Patent. (Cimino Decl. ¶¶ 25-26 (citing '050 Patent Figs. 15-16).) Defendant also argues — in its Reply Memorandum in support of its own Motion for Summary Judgment — that if plaintiff's argument were accepted "[it] would render superfluous the Court's construction requiring that the handle be something 'grasped by the hand.'" (Ethicon Summ. J. Reply Mem. [Doc. # 165] at 9.)

In comparing the nature of the pistol grip in the ACE products and the various "second handle" embodiments contemplated by the '050 Patent, and including the Court's construction of the term "handle" as broader than defendant's proposed construction which required that the handle contain an opening into which fingers can be inserted, it becomes apparent that defendant's argument here is another attempt to limit the Court's construction of "handle." The Court's construction encompasses "handles" being grasped by fingers, which part of the hand, as Dr. Cimino acknowledged, is what is also used to grasp the second

"handles" on other of the accused instruments and on the preferred embodiments disclosed in the '050 Patent itself. Indeed, the second handles depicted in the patent embodiments appear suited for depressing with fingers, rather than grasping by an entire hand. See '050 Patent, Figs. 1, 3-4, 6, 10.

Thus, there is no genuine dispute of material fact for trial and plaintiff has met its summary judgment burden on Claim 1 of the '050 Patent for all accused products.

C. '050 Patent Claim 5

Claim 5 of the '050 Patent claims "[t]he surgical instrument of claim 1, wherein the clamp member includes a pair of pivot pins to pivot the clamp member between the open and clamped positions." Again, other than its generalized denial concerning anticipation and infringement, Ethicon does not dispute that the accused products meet this limitation, except for the ACE products. (See Durfee Decl. ¶¶ 60-61, Figs. A-18 & A-19 (LCS and CS products).) The ACE products, however, do not have a pair of pivot pins; rather, the clamp arm pivots around a "single weld pin" (defendant's term) or "axle" (plaintiff's term) that fits into holes on either side of the clamp to pivot the clamp arm between the open and clamped/closed positions. Plaintiff relies on a doctrine of equivalents analysis, with its expert stating that in his opinion, "the axle used in the ACE instruments performs the same function, in the same way, to reach the same

result as the claimed pair of pivot pins to pivot the clamp member between open and clamped positions." (Durfee Decl. ¶ 62.) Ethicon contends Durfee's analysis is too conclusory and lacks particularized testimony about the claimed insubstantiality of the differences. (Ethicon Summ. J. Reply Mem. at 8-9.)

The figures attached to Dr. Durfee's Declaration picturing an ACE product (Figs. D-4 & D-5) show the "axle acting as a pair of pivot pins," according to plaintiff. These photographs depict a single component that stretches across the clamp and fits into holes on either side, allowing the clamp to pivot about its ends. Clearly, then, the ACE products do not literally infringe Claim 5.

However, notwithstanding defendant's protestations that the doctrine of equivalents analysis by plaintiff's expert Dr. Durfee is conclusory and lacks particularity, Durfee's testimony establishes that, while the accused products may not literally infringe this claims for a "pair of pivot pins," it infringes pursuant to the doctrine of equivalents applying the "function-way-result test." Toro Co., 266 F.3d at 1370. According to the Federal Circuit:

> Pursuant to our precedent, a patentee must . . . provide particularized testimony and linking argument as to the insubstantiality of the differences between the claimed invention and the accused device or process, or with respect to the function, way, result test when such evidence is presented to support a finding of infringement under the doctrine of equivalents. . . . Generalized testimony as to the

> overall similarity between the claims and the accused infringer's product or process will not suffice. . . . The same rule applies in the summary judgment context.

AquaTex Indus., Inc. v. Techniche Solutions, 479 F.3d 1320, 1328 (Fed. Cir. 2007) (internal quotation omitted). Here, while Durfee's declaration is somewhat conclusory,[17] his testimony fills in the particulars by explaining that the function of the axle in the ACE instruments "is to pivot the clamp member" (just like the function of the pivot pins in the patent claim), and that the axle performs that function "[b]y having two ends," one "in the outer housing," the other "fixed to the clamp, [which] then go through a hole in the outer housing." (Durfee Dep. [Doc. # 170, Ex. 5] at 172-73.) This enables "the clamp member [to] move in a pivoting motion about those pivot pins or axle" as described in the patent claim. (Id. at 173.) Durfee's testimony on this is undisputed, and the Court's review of the diagrams in the record — as well as those presented at oral argument — results in a conclusion consistent with Durfee's explanation. Accordingly, the undisputed evidence requires the conclusion that the axle/weld pin pivot mechanism of the ACE products is the

[17] According to Durfee: "The axle has two ends constituting a pair of pivot pins that fit into holes on either side of the clamp to pivot the clamp member between the open and clamped positions. . . . [I]n my opinion the axle used in the ACE instruments performs the same function, in the same way, to reach the same result as the claimed pair of pivot pins to pivot the clamp member between opened and clamped positions." (Durfee Decl. ¶ 62.)

substantial equivalent of that described in Claim 5 and thus summary judgment of infringement is granted as to all accused products, including the ACE products.

D. '050 Patent Claim 9

Claim 9 of the '050 Patent claims "[t]he surgical instrument of claim 1, further comprising a transducer removably connected to the housing." Pursuant to agreement of the parties, "transducer removably connected to the housing" was construed as "a transducer configured, as part of its normal use, to be joined with and be unjoined with the housing so that when connected the transducer may transmit its ultrasonic vibrations to the parts of the instrument designed for reception and transmission of ultrasonic vibrations." (Claim Constr. at 3.) Apart from its general denial concerning anticipation/infringement, which does not suffice to create a genuine issue of material fact for the reasons discussed supra, defendant does not dispute that the accused products meet this limitation. (See Durfee Decl. ¶¶ 63-64, Figs. A-12 & A-20.) Accordingly, summary judgment of infringement on this claim is granted to plaintiff.

E. '286 Patent Claim 1

Claim 1 of the '286 Patent claims an ultrasonic instrument with multiple limitations. Again, Ethicon's only dispute with plaintiff's position concerning this claim is its argument about anticipation/invalidity if infringement is found, which argument

the Court rejected supra. Ethicon offers nothing to dispute the evidence proffered by U.S. Surgical showing that the accused instruments meet all of the limitations in Claim 1 of the '286 patent,[18] and therefore summary judgment is granted on this claim.

F. '286 Patent Claim 6

Claim 6 of the '286 Patent claims "[a]n ultrasonic instrument according to claim 1, wherein the clamp member includes a pair of tissue engaging stops." The Court construed "clamp member" as "[a] part configured to hold, grasp, or apply pressure to tissue, that is movable, that works with a component of the instrument (e.g. the cutting jaw), and which is separate and distinct from the tissue contact surface." (Claim Constr. at 17.) By agreement of the parties, "tissue engaging stops" was construed as "the portions of the clamp that engage tissue and prevent tissue from moving past the proximal portion end of the blade surface." (Id. at 3.) On the basis of these

[18] See Durfee Decl. ¶ 67 (ultrasonic surgical instruments); ¶¶ 46-48 (vibration coupler); ¶¶ 49-51 (cutting jaw operatively connected to the vibration coupler); ¶¶ 52-54 (clamp member supported adjacent to the cutting jaw, the clamp member being movable in relation to the cutting jaw between an open position in which at least a portion of the clamp member is spaced from the cutting jaw and a closed position in which the clamp member and the cutting jaw are in substantially juxtaposed alignment); ¶¶ 55-57 (rotatable member operatively associated with the vibration coupler, the clamp member and the cutting jaw, the rotatable member being rotatable to cause corresponding rotation of the clamp member and cutting jaw about a longitudinal axis of the instrument).

constructions, plaintiff's expert states that the accused products include a pair of tissue engaging stops. (Durfee Decl. Fig. A-35.) Ethicon contends that plaintiff's evidence is insufficient as it has failed to identify any testing or other evidence showing that the accused products do in fact engage tissue and prevent positioning of tissue beyond the proximal end of the cutting surface of the cutting jaw, as required by the construction of the claim terms, arguing that plaintiff's expert testified that he did not test the accused products on tissue to make his own determination (Durfee Dep. at 176-78), nor did he ever see the accused products used in surgery (id. at 49-51), but that he formed his opinion on the basis of examining the products (id. at 177-78).

As plaintiff correctly observes, Ethicon's bare denial, without any supporting evidence, cannot create a genuine issue of material fact precluding summary judgment. Durfee testified that "when examining the [accused] devices, [he] looked at where this tissue engaging stop was, [] and saw that things couldn't get past it, or get more proximally along the . . . blade surface than that tissue engaging stop that basically limits where the tissue can go proximally." (Durfee Dep. at 178.) He did not conduct any tissue tests, but "might have used a rubberband, or other things to see how far back [one] could grip things." (Id.) This evidence supports a conclusion that the tissue engaging

stops on the accused products do serve the purpose of "prevent[ing] tissue from moving past the proximal portion end of the blade surface," as required by Claim 6, and Ethicon offers no evidence to dispute this conclusion. Accordingly, summary judgment is granted to plaintiff on this claim.

G. '286 Patent Claim 7

Claim 7 of the '286 Patent claims an ultrasonic instrument with multiple limitations, including one concerning a "tissue engaging stop positioned to engage tissue and prevent positioning of tissue beyond the proximal end of the cutting surface of the cutting jaw." This is the only limitation which defendant disputes, beyond its generalized denial rejected by the Court supra. As discussed above with respect to Claim 6, because plaintiff has demonstrated that the accused products meet the "tissue engaging stop" limitation, summary judgment is also granted on this claim.

H. '286 Patent Claim 15

Claim 15 of the '286 Patent claims "[a]n ultrasonic instrument according to claim 7, wherein the cutting surface of the cutting jaw is curved along the longitudinal axis of the instrument." In its Claim Construction, the Court rejected Ethicon's proposed construction for the term "curved along the longitudinal axis" as "curved outwardly and downwardly in the distal direction," explaining that such a construction would

effectively import a limitation from the specification into the claim term, and thus the Court adopted plaintiff's proposed construction of "deviating from a straight line along the lengthwise dimension." (Claim Constr. at 23-26.) In so doing, however, the Court also observed that a curve along the longitudinal axis could be a curve along the lengthwise dimension "'up or down,' as long as it did not curve 'side to side' — which curvature . . . would no longer be along the longitudinal axis, but a curve along the latitudinal axis." (Id. at 25; accord id. at 26 n.11 ("[T]he claim language provides that it is curved 'along the longitudinal axis' — i.e., curved in the up or down direction).)

On reconsideration, plaintiff sought to clarify the Court's comments regarding curvature "up and down" versus "side to side," arguing that "the claim language 'curved along the longitudinal axis' does not restrict the blade geometry to being curved up or down and that thus, the Court's suggestion that a cutting edge curved 'side to side' would be curved 'along the latitudinal axis,' rather than 'along the longitudinal axis,' is incorrect." (Recon. Ruling [Doc. # 89] at 4.) The Court agreed with plaintiff "that a cutting surface 'curved along the longitudinal axis' of the instrument includes a cutting surface that extends along the lengthwise dimension of the instrument — an extending line, rather than a plane — whether it curves up, down, left, or

right along that line." (Id. at 4-5.) The Court rejected defendant's analogy "to a road that is also going straight, due North, and then turns West, '[n]ow its surface is curving away from the longitudinal axis. If its surface were the cutting surface of a cutting jaw, the cut it would make would be a curve.'" (Id. at 6.) The Court favored plaintiff's analogy of

> "water shot under high pressure from a pipe pointing upwards. The tube of the pipe defines a longitudinal axis. As the water exits the pipe and shoots into the air, it will curve off this longitudinal axis in any number of ways (left, right, forward, backward, etc.). These curves are deviations along the longitudinal axis regardless of the direction from which they deviate along this axis to form the curve."

(Id. at 6-7.) The Court found that "[t]hese conflicting analogies illustrate[d] [plaintiff's] characterization of the 'longitudinal axis' as a line, rather than a plane," observing that "the language in the Patent Abstract describing a cutting jaw with 'a blade surface which is curved downwardly and outwardly in the distal direction with respect to the longitudinal axis' suggests that the surface could curve in other directions and still be along the longitudinal axis." (Id. at 7.)

Ethicon argues that in the accused products (e.g., Durfee Decl. Fig A-49), "the cutting surface curves away from the longitudinal axis (or lengthwise dimension), not along it." (Cimino Decl. ¶¶ 129-30.) Ethicon's expert references his earlier report, in which he claims that the term "curved along

the longitudinal axis is "nonsensical since the ordinary meaning of 'axis' . . . refer[s] to a straight line." (Cimino Rep. ¶ 63.) What defendant and its expert do not appear to appreciate is that the term, as construed by the Court to mean "deviating from a straight line along the lengthwise dimension," refers to a cutting jaw that curves from the straight line running along the lengthwise dimension of the instrument (i.e., from the straight line made by the lengthwise axis of the instrument). As the Court acknowledged in rejecting defendant's argument made at the Markman hearing that "plaintiff's [proposed] language contradict[ed] the claim language itself, where you have language that says you must curve along the axis, and then you are saying, well, it can deviate from the axis, that's just contrary to the plain language of the claims," "the claim language does not provide that the blade surface exactly follows the longitudinal axis — if it did, the blade surface would not be curved at all, but would be straight." (Claim Constr. at 26 n.11.) Thus, the curvature that defendant's expert describes as curving "away from" the longitudinal axis is in fact what is contemplated by Claim 15. Indeed, the blade surface pictured in the '286 Patent figures (e.g., Fig. 4 (blade surface 59)) has the same curvature away from the longitudinal axis of the instrument (albeit in the downward direction, as opposed to the sideways direction as have the blade surfaces in the accused products). Moreover, while at

oral argument Ethicon seized on plaintiff's characterization of the curvature of the cutting surface away "from" the longitudinal axis, which it claimed does not comport with the claim language of curving "along" the axis, the plaintiff's description is consistent with the Court's construction of the curvature as deviating "from" a straight line along the lengthwise dimension (i.e., the longitudinal axis).

Thus, defendant has not identified a genuine issue of material fact for trial concerning Claim 15, and summary judgment is also granted on this claim.

I. Summary

Therefore, as set out above, Plaintiff's Motion for Summary Judgment of Infringement will be granted as to all claims to which the Motion relates.

V. Ethicon's Motion for Non-Infringement

A. Coupling Member ('286 Patent Claims 10-13)

Claim 10 of the '286 Patent (and Claims 11-13 dependent thereon) claims "[a]n ultrasonic instrument according to claim 9, further including a coupling member, the coupling member interconnecting the actuator tube and the moveable handle." The Court has construed the term "coupling member" as a "component that connects two other parts." (Claim Constr. at 4.)

Ethicon contends it is entitled to summary judgment on these claims because the term "coupling member" requires a single

component that connects the actuator tube and the moveable handle. In the accused instruments (e.g., Durfee Rep., Fig. A-44; Pl. Opp. Mem. [Doc. # 154] at 6, Fig. 1), the actuator tube is connected to a "tube collar" and the moveable handle is connected to a "yoke retainer," and thus the tube collar — the component that plaintiff contends is the coupling member — cannot be the coupling member as required by the claims because it is not connected to both the actuator tube and the moveable handle. (See Cimino Infringement Rep. [Doc. #136, Ex. 8] ¶¶ 19-22.)

Plaintiff, in response, claims that the accused products have a coupling member that interconnects the actuator tube and the moveable handle, contending that part of the moveable handle wraps around the coupling member (the part referred to by Ethicon as the "yoke retainer") so that motion of the handle causes motion of the coupling member, with the coupling member being tightly fit over the actuator tube so that the motion of the coupling member caused by motion of the handle in turn causes motion of the actuator tube. (Durfee Rep. ¶¶ 132-34.) Plaintiff has essentially two arguments: first, that nothing prevents the coupling member from being a combination of the "tube collar" and the "yoke retainer"; and second, that a person of skill in the art would find what Ethicon calls the "yoke retainer" to in fact be part of the moveable handle, as U.S. Surgical's expert claims, and thus the claimed coupling member would in fact serve to

interconnect the actuator tube and the moveable handle. (See Durfee Dep. at 186-87.)

The Court agrees with Ethicon's contention that the Court's construction contemplates that the coupling member will be one component, not a combination of two (as in plaintiff's first argument). But Ethicon's argument — that the Court's construction of the term "handle" to mean a part of the instrument designed to be grasped by the hand precludes U.S. Surgical's interpretation of the yoke retainer being part of the handle — is not as persuasive. The Court's construction did not provide that the entirety of the moveable "handle" must be capable/designed to be grasped by the hand. In fact, for the moveable handle to have any effectiveness (i.e., to be capable of triggering any movement), a portion of it must necessarily connect into the internal mechanism of the instrument to transmit its movement. Thus, there remains an genuine issue of material fact for trial as to whether the yoke retainer is a part of the moveable handle. Summary judgment of non-infringement on these claims on this basis is thus denied.

B. Swivel Member ('286 Patent Claims 11-13)

Claim 11 of the '286 Patent (and all dependent claims) claims "[a]n ultrasonic instrument according to claim 10, wherein the coupling member includes a swivel member, the swivel member being positioned to permit rotation of the coupling member in

relation to the moveable handle." The Court construed "swivel member" as "[a] component designed to permit the coupling member to swivel or rotate." (Claim Constr. at 20.)

Ethicon argues that the Patent makes clear that the swivel member is a component separate and apart from the coupling member, as it permits the coupling member to rotate even though the swivel member itself does not rotate. ('286 Patent, 5:5-18; Cimino Infringement Rep. ¶ 26.) U.S. Surgical contends that the swivel member is at the proximal end of the coupling member and has a circular open slot that receives a feature on the moveable handle, permitting the coupling member to rotate with the rotatable knob but not carrying the moveable handle along with it. (Durfee Rep. ¶¶ 135-37; Pl. Opp. Mem. Figs. 2-4.) But Ethicon claims that if the "tube collar" is considered the "coupling member," as U.S. Surgical claims, it cannot also constitute the "swivel member," as this interpretation would render the swivel member element superfluous and would violate the principle that all limitations in a claim must be considered meaningful. See Lantech, Inc. v. Keip Mach. Co., 32 F.3d 542, 546 (Fed. Cir. 1994). Plaintiff contends that this argument is "flatly contradicted" by the plain claim language, stating that the "coupling member includes a swivel member." '286 Patent, 8:25.

The Court agrees with U.S. Surgical that Ethicon is

attempting to read a limitation from the preferred embodiment into the claim that has no basis in the claim language itself nor the Court's construction thereof. Neither the claim language nor the Court's construction require that the swivel member be a separate piece from the coupling member; the requirement is only that the coupling member include as a component a swivel member permitting it to swivel or rotate. This interpretation does not render the swivel member element superfluous, it merely permits that element to exist as part of the coupling member, or as a separate piece. Summary judgment on these claims on this basis is thus denied.

C. Removably Fastened ('286 Patent Claim 17)

Claim 17 of the '286 Patent claims "[a]n ultrasonic instrument according to claim 7, wherein the clamp member includes a tissue contact surface removably fastened to the clamp member." The Court construed the term "removably fastened" as "designed so as to be capable of being held secure to something else and designed so as also to be capable of being unsecured and taken away from." (Claim Constr. at 28.)

Ethicon argues that the clamp arm pad in the accused instruments is not "removably fastened" to the clamp arm because the clamp arm pad cannot easily be removed from the clamp arm once the instrument has been assembled for commercial use. In fact, Ethicon observes, it has specifically incorporated certain

features into the accused instruments to prevent the clamp arm pad from being removed. (Houser Decl. ¶¶ 9-12; Cimino Rep. ¶¶ 31-32.) Plaintiff responds that Claim 17 does not require that the clamp arm pad be easily removable and observes that its expert was able to unsecure the pads by using a small screwdriver or fingernail and that he thus concluded that a person of skill in the art would determine that the clamp arm pad (i.e., the tissue contact surface) in the accused instruments is removably fastened to the clamp arm. (Durfee Dep. at 188.)

While plaintiff argues that "manufacturer intent" about removability is irrelevant, defendant responds that plaintiff cannot dispute that, given the design of the accused instruments, it cannot be said that they were not designed "so as also to be capable of being unsecured and taken away from" as required by the Claim. Defendant contends that this argument

> is analogous to saying that there is no difference between the roof of a hard-top car and a convertible, because you can, if you use enough tools and a blow torch, cut the hard-top off of a non-convertible car. The mere fact that something can be removed by brute force does not mean that it is designed so that it can be removed.

(Def. Reply [Doc. # 165] at 4.) Defendant also notes that plaintiff's expert admitted that with some of the tissue contact surfaces in the accused instruments, after he pried them off he could not reattach them to the clamp member. (Durfee Dep. at 188.)

The Court agrees that plaintiff's opposition ignores the Court's construction of Claim 17 requiring that the tissue contact surface be designed, inter alia, "so as [] to be capable of being unsecured and taken away from" the clamp member. The undisputed evidence shows that the accused instruments were in fact specifically designed so that the tissue contact surface would not be capable of being unsecured and taken away from the clamp member. Dr. Durfee's ability to pry the tissue contact surface off the clamp member and then, in some instances, his inability to reattach it, does not change this conclusion. Thus, summary judgment of non-infringement is granted on this claim.

D. Cam Mechanism (Multiple Claims)

Defendant seeks summary judgment of non-infringement with respect to multiple claims in the patents in suit (Claims 11-12 of the '050 Patent; Claims 8-14 of the '286 Patent; and Claims 1-3, 6, 8-13, 16, 18, 23-25 of the '544 Patent) on the basis of the claim terms regarding the "cam mechanism," construed by the Court as follows:

- Claims 11-12 of the '050 Patent: "camming members" construed as "[t]he follower parts of the cam mechanism that are imparted motion by the cam slots and whose motion is guided by the cam slots." (Claim Constr. at 10.)
- Claim 12 of the '050 Patent: "slots engageable with a

pair of camming members" construed as "openings or grooves that impart motion to and guide the motion of the camming members." (Id. at 11.)

- Claims 8-14 of the '286 Patent: "cam slot" construed as "opening or groove that imparts motion to and guides the motion of the camming member." (Id. at 17-18; Recon. Ruling at 5.)
- Claims 8-14 of the '286 Patent: "cam members" construed as "[t]he follower parts of the cam mechanism that are imparted motion by the cam slots and whose motion is guided by the cam slots." (Claim Constr. at 18-19.)
- Claims 1-3, 6, 8-13, 16, 18, 23-25 of the '544 Patent: "the clamp including a camming member which operatively engages the actuation member such that movement of the actuation member pivots the clamp between the open and clamped positions" construed as "[t]he camming member of the clamp (follower) and the actuation member constitute a camming mechanism to pivot the clamp." (Id. at 29.)
- Claims 1-3, 6, 8-13, 16, 18, 23-25 of the '544 Patent: "slot for receiving the camming member of the clamp/ pair of slots" construed as an "[o]pening or groove (or a pair of openings or grooves) that imparts motion to and guides the motion of the camming member." (Id. at

29-30.)

As defendant's expert explains, and to which plaintiff and its expert agree,

> [a] 'cam mechanism' is commonly understood to be a mechanical apparatus for transforming one type of motion, referred to as the input motion, into another desired motion, referred to as the output motion. The two primary components of a cam mechanism are referred to as the 'cam' and the 'follower,' which are in direct contact with each other.

(Cimino Infringement Rep. ¶ 39; see also id. ¶¶ 40-45.) Defendant's expert contends that the accused instruments do not satisfy the Court's constructions of "cam" or "camming members" and/or "cam slots"

> because the motion of the teeth or protrusions on the clamp arm are not guided by the openings or slots in the distal end of the inner tube. The openings or slots of the inner tube engage the teeth or protrusions of the clamp arm and impart motion to the clamp arm through contact between the edge of the opening/slots and the teeth/protrusions. The possible path motion of the teeth or protrusions is entirely determined by the fixed pivot; no guidance as to the path motion is provided by the openings or slots. The openings or slots in the distal end of the inner tube simply engage the teeth or protrusions to provide or impart effort to cause said motion of the clamp arm. No guidance is provided or intended by the openings or slots.

(Id. ¶ 48.) Instead, defendant contends that "the clamp arm is opened and closed by means of a rack-and-pinion gear mechanism . . . and not by means of a cam mechanism," explaining that

> [a] rack-and-pinion gear mechanism is a gear-gear pair where the rack is simply a gear of infinite radius which translates back and forth (reciprocates) relative to a rotating pinion gear. This back-and-forth motion of the rack causes the pinion gear to have a clockwise

> and then counterclockwise motion, i.e., an open-and-close type motion. In the standard rack-and-pinion gear design, the input is supplied to the pinion gear (rotation) which causes the rack to translate.

(Id. ¶ 49; Def. Mot. at 15 (Fig.).)

Plaintiff disputes that the mechanism in the accused instruments is a rack-and-pinion gear mechanism, with Dr. Durfee stating that in the accused products, openings or grooves are formed on each side of the distal end of the actuator tube and impart motion and guidance on a follower (the "cam slots"), and each product has a pair of opposing and internally extending protrusions which interact with the cam slots such that they are guided and imparted motion by the slots (which protrusions are the "followers"). (Durfee Rep. ¶¶ 75-77, 126-28, 170-78; Durfee Dep. at 170-71, 278-79; Pl. Opp. at 14-15, Figs. 9-10.) Plaintiff contends that the conversion of directional motion into another type of directional motion described by Dr. Cimino accurately describes what happens in the accused products:

> [t]he actuator tube is moveable between advanced and retracted positions in response to the handle assembly to effect movement of the clamp between open and closed positions. When the actuator tube slides back and forth due to movement of the handle, i.e. a left-right linear motion, the motion of the cam member on the clamp member is moved and guided in [a] diagonal arcuate manner by the cam slots. This motion causes the clamp to pivot about the pivot pins in an opening or closing manner depending on the direction of the linear and arcuate movement. Hence, the internally extending protrusions are 'followers' that are 'imparted motion by the cam slots' and 'whose motion is guided by the cam slots,' just as called for by the claim construction.

(Pl. Opp. at 15 & Figs. 11-12 (citing Durfee Rep. ¶¶ 71-78, 126-28, 170-78; Durfee Dep. at 170-71; 278-79).)

Plaintiff demonstrates the existence of an issue of triable fact as to whether the mechanism in the accused instruments constitutes a rack-and-pinion gear mechanism or a cam mechanism, with Dr. Durfee's testimony describing how the mechanism has the characteristics of a cam mechanism, and by distinguishing the accused products from another Ethicon product which clearly uses a rack-and-pinion gear mechanism. (Pl. Opp. at 18 & Fig. 14.) While Ethicon focuses on plaintiff's description of the movement transformation from linear to movement in a "diagonal arcuate manner," observing that the slots on the accused products are not diagonal or arcuate, the slots themselves are not required to be diagonal/arcuate as the claims only require use of a cam mechanism, which can be shown by transformation of movement through use of slots. The claims do not restrict the slot shape or the direction of transformed movement, and the evidence could support a conclusion that these are the only differences between that described in the patent claims and that utilized in the accused products. Additionally, the Court agrees that the fact that Dr. Durfee was shown a figure of a rack-and-pinion gear mechanism and agreed it did not depict a cam mechanism is irrelevant — the mechanism shown in the figure presented to Dr. Durfee (Pl. Opp. at 19, Fig. 15) has not been shown by defendant

to be the same as that used in the accused instruments.

As to defendant's contention — that the slots in the accused instruments do not guide the purported cam members on the basis that the movement of the cam members is determined by the pivot pin(s) and because the pivot pin(s) restrict(s) the motion in which the protrusion/cam members may travel, they cannot be guided by the slots on the actuator tube — this is disputed by Dr. Durfee, who stated that the slots do both impart motion to the protrusions/cam members (which Cimino acknowledges, Cimino Infringement Rep. ¶ 48), and guide the cam members. (E.g., Durfee Rep. at ¶¶ 71-74.) Indeed, defendant's claim about the restriction of movement by the pivot pin(s) does not demonstrate its entitlement to summary judgment because the instruments described by the patent claims at issue also contain pivot pins which restrict the movement of the cam members. See '050 Patent, 12:43-53, 14:35-38, Figs. 28A-28C. Defendant's narrow approach to the concept of "guiding" as applied to the cam slots is an attempt to import into the Court's infringement analysis a claim limitation which was rejected during the claim construction phase: defendant sought to use the word "control" to describe the interaction between the cam slots and the cam members. In rejecting defendant's proposal due to lack of basis in either the claims or the specifications, the Court also remarked on the testimony of plaintiff's expert at the Markman hearing "that many

factors can influence the movement of the cam followers, indicating that the 'cam slots' do not definitively 'control' the movement of the cam members." (Claim Constr. at 10 n.3 (citing Markman Tr. [Doc. # 57] at 56, 59).)

Accordingly, there exists a genuine issue of material fact for trial as to whether the purported cam slots in the accused instruments in fact impart motion to and guide the motion of the purported cam members in the accused instruments. Thus summary judgment on these claims is denied.

E. Concave Transverse Cross Section ('286 Patent Claim 19)

Claim 19 of the '286 Patent claims "[a]n ultrasonic instrument according to claim 7, wherein a transverse cross-section of the clamp member defines a concavity." By agreement of the parties, "concavity" is construed as "a shape that is curved inward." (Claim Constr. at 4.)

Defendant's expert states that while plaintiff's expert identified a claimed concavity in Figure A-52 (which identifies the T-slot of the clamp arm that is used to attach the clamp arm pad to the clamp arm),

> [c]ontrary to Dr. Durfee's opinion, however, the T-slot does not define a 'concavity' under the Court's construction. Although the T-slot may define an indentation or an inward depression in the clamp arm, that indentation or inward depression is not 'curved' in the ordinary sense of the word (i.e., arcuate as in a concave lens) as required by [defendant's] understanding of the parties' agreed-upon definition of 'concavity.'

(Cimino Infringement Rep. ¶ 54.) In response, plaintiff points to the cross-section of the tissue contact surface, which is part of the clamp, and which it claims is "demonstrably concave." (Pl. Opp. Mem. at 21 & Fig. 17.) Plaintiff contends that defendant

> has pointed to another figure in Dr. Durfee's original expert report showing the tissue contact surface removed, which it contends shows a T-shaped crevice, not a concave surface on the metal part of the clamp. But this is irrelevant. Regardless of whether Ethicon contends that some other part of the clamp arm is not concave, the concavity of the tissue contact surface in Figure 17 above is uncontested.

(Id.)

However, as Ethicon observes, it is not the tissue contact surface which the claim requires to be concave, it is the clamp member itself, and plaintiff does not claim that the clamp member itself defines a concavity (stating only "[t]he cross section of the tissue contact surface, which is part of the clamp, is demonstrably concave") (emphasis added). Further, Claim 17 makes clear that the clamp member is a separate component from the tissue contact surface by requiring the tissue contact surface to be removably fastened to the clamp member. Thus, as there is no dispute that the clamp member of the accused instruments does not have a cross-section defining a concavity, summary judgment of non-infringement is granted on this claim.

F. Longitudinally Extending Cutting Edge ('544 Patent Claim 8)

Claim 8 of the '544 Patent claims "[a]n ultrasonic instrument according to claim 6, wherein the curved blade surface includes a longitudinally extending cutting edge." The Court construed the term "longitudinally extending cutting edge" as "[t]he edge of the blade surface designed for cutting that extends along the lengthwise dimension." (Claim Constr. at 33-34.)

Defendant contends that "the lengthwise dimension" is "the axis defined by the center line of the outer tube, the inner tube, and the vibration coupler," and argues that "under this reading of the Court's construction, a curved blade having a cutting surface that 'extends along the lengthwise dimension' must be coextensive with, or parallel to, the center line of the outer tube, the inner tube, and the vibration coupler (i.e., the longitudinal axis of the instrument)." (Def. Mot. at 19 (citing Cimino Infringement Rep. ¶ 59).) On the basis of its expert's statement that the cutting surface of the blades in each accused instrument curves away from the longitudinal axis, defendant claims that the blade surface of the accused instruments cannot be said to have a cutting edge that "extends along the lengthwise dimension." (Cimino Infringement Rep. ¶¶ 61-62 & Def. Mot. at 19 (Fig.).)

However, as discussed supra with respect to Claim 15 of the

'286 Patent, "the claim language does not provide that the blade surface exactly follows the longitudinal axis — if it did, the blade surface would not be curved at all, but would be straight." (Claim Constr. at 26 n.11.) Indeed, the embodiments described in the '544 Patent itself do not contain blade surfaces running directly parallel with the longitudinal axis of the instrument, but rather they contain blade surfaces curving "away" from that axis.[19] (E.g., '544 Patent, Fig. 4 (curved blade surface 59).) While defendant asserts that the term "longitudinally extending cutting edge" must be given meaning beyond just "curved," and contends that plaintiff's interpretation does not do this, a finding that the accused instruments embody this limitation would not render the term superfluous. As plaintiff explained in its Motion for Reconsideration of the Court's initial claim constructions, absent the "longitudinal" qualification, the blade surface could curve along the latitudinal axis (i.e. deviate from a straight line along the crosswise dimension of the instrument), which is obviously not what is contemplated by the '544 Patent. (See Pl. Mot. Recon. [Doc. # 64] at 4, Diag. B.) Accordingly, defendant has not met its burden of demonstrating the absence of any genuine issue of material fact as to Claim 8 of the '544

[19] Further, although Ethicon does not raise its "directional curve" argument here, as also discussed supra the claim language does not limit the curvature to the up or down direction only (which would exclude side to side curvature) so long as it is in the lengthwise dimension.

Patent, and thus summary judgment of non-infringement on this claim is denied.

G. Pair of Pivot Pins ('050 Patent Claims 5, 11)

As discussed above with respect to plaintiff's Motion for Summary Judgment of Infringement on Claim 5 of the '050 Patent, these claims claim the following limitations: "[t]he surgical instrument of claim 1, wherein the clamp member includes a pair of pivot pins to pivot the clamp member between the open and clamped positions" (Claim 5); "[t]he surgical instrument of claim 1, wherein the clamp member includes a pair of pivot pins and a pair of camming members spaced from the pivot pins" (Claim 11). Defendant moves for summary judgment of non-infringement on these claim as to the ACE products only. Given the Court's grant of summary judgment to plaintiff on these claims, however, on the basis of the doctrine of equivalents for the ACE products, defendant's Motion is denied as to these claims.

H. Moveable Handle ('050 Patent Claims 9-12, '286 Patent Claims 9-13)

As also discussed above with respect to Claim 1 of the '050 Patent, certain of the '050 Patent and '286 Patent claims concern a second "moveable handle," which Ethicon contends are absent in two of the ACE products having "pistol-grip" second handles. Given the Court's determination above that the pistol-grip products can embody the "moveable handle" limitation, however, defendant's Motion with respect to these claims must be denied.

I. Summary

As set out above, defendant's motion is granted with respect to Claims 17 (removably fastened) and 19 (concave transverse cross section) of the '286 Patent. The motion is denied in part, with respect to Claims 8-14 (cam mechanism), 10-13 (coupling member), 11-13 (swivel member), and 9-13 (moveable handle) of the '286 Patent; Claims 5 and 11 (pair of pivot pins), 9-12 (moveable handle), and Claims 11-12 (cam mechanism) of the '050 Patent; and Claims 8 (longitudinally extending cutting edge) and 1-3, 6, 8-13, 16, 18, and 23-25 (cam mechanism) of the '544 Patent (longitudinally extending cutting edge).

VI. Conclusion

For the foregoing reasons, defendant's Motion for Summary Judgment of Invalidity of Claims 1 and 7 of the 407 Patent Under 25 U.S.C. §§ 102(a) and 102(b) [Doc. # 119] is GRANTED and defendant's Motion for Summary Judgment of Invalidity Pursuant to 35 U.S.C. § 102(g) [Doc. # 124] is DENIED. Plaintiff's Motion for Summary Judgment of Infringement [Doc. # 127] is GRANTED, as set out in Pt. IV.I., supra. Defendant's Motion for Partial Summary Judgment of Non-infringement [Doc. # 121] is GRANTED in part and DENIED in part, as set out in Pt. V.I., supra. With respect to the grant of plaintiff's Motion, however, judgment will not be entered for plaintiff on the claims at issue in that Motion pending disposition of adjudication of defendant's

§ 102(g) invalidity defense, which, if successful, would render moot the Court's finding of infringement as a matter of law.

The parties' Trial Memoranda shall be filed by November 8, 2007.

IT IS SO ORDERED.

/s/
Janet Bond Arterton
United States District Judge

Dated at New Haven, Connecticut this 8th day of October, 2007.